

PATENT CLAIMS

1. Method for welding rails with heat-treated heads, in which the halves of a casting mold made of a refractory material each having at least one lateral vent are mounted around two end pieces of the rail to be connected, thereby forming a casting space, the mounting mold is preheated, the casting space is sealed by a sealing element made of refractory material covering the rail head, then steel produced by a metallothermal process penetrates into the casting space after passing over the sealing element and fills the casting space, whereby alloy inserts in solid and compact form arranged above the rail head in the casting space are contacted with part of the steel forming the weld in the head zone,
characterized in that
prior to the preheating, an alloy insert having a shape adapted to the preheating of the rail ends is placed in the mold and the steel, after passing over the sealing element, penetrates into the casting space through sprues provided in each half mold and emerges into the casting space substantially at the rail head.
2. Device for welding rails with heat treated heads, in particular for performing the method of claim 1, with a casting mold comprising two mold halves made from a refractory material

each having at least one lateral vent, which halves upon assembly around two rails ends to be connected, define a casting space, with a sealing element covering the rail head and sealing the casting space and with alloy inserts in solid and compact form arranged above the rail head,

characterized in that,

in both mold halves (1, 2) in the area (G; G1') of the casting space (G) above the rail head (K), a bearing (3; 10) is provided, on which an alloy insert (4; 4'; 12; 12') can be inserted with a shape that makes it possible to preheat end pieces of the rail and that in each mold half (1, 2), at least one sprue (5) is provided, which opens in the region of the rail head (K) into the casting space.

3. Device of claim 2, characterized in that the bearing is formed by a circumferential groove (3), such that the alloy insert (4; 12) can be inserted during the mold assembly.

4. Device of claim 2, characterized in that the bearing is formed by a circumferential step (10), such that the alloy insert (4; 12) can be inserted after the mold assembly.

5. Device of one of claims 2 through 4, characterized in that the casting space has a right-angled cross section at least in the

area of the bearing and the alloy insert comprises at least one bar.

5 6. Device of one of claims 2 through 5, characterized in that the alloy insert comprises at least one quadrilateral element (4a) with a central opening (4a).

10 7. Device of one of claims 2 through 4, characterized in that the casting space has a circular cross section at least in the area of the bearing and the alloy insert comprises at least one graduated ring.

15 8. Device of claim 7, characterized in that the alloy insert comprises a circular ring (12).

 9. Device of one of claims 2 through 8, characterized in that each mold half has at least one bypass (9) from the sprue (5) to the lateral vent.

20 10. Device of one of claims 2 through 8, characterized in that each mold half has at least one bypass (11) from the sprue (5) to the casting space in the region of the foot flanks of the rails.